# Work Order ID 88091

lgust-27-12 10:39:05 AM

\*88091\*

Item ID: Revision ID:	D407-667-105			Accept	*N900	<b>1</b> 040	100	)* s	etup Stai	* *N	S1*
Item Name:	Crosstube Fwd								Sto	*N	S2*
. ***		ty: 1.00	*1*	•	Cust Item	ID:	35.3				
Required Date:	15/08/2012 Req'd	<b>Qty:</b> 1.00	*1*	•	Customer	:					
Approvals:	Process Plan:	165	Date: 12/08	/2-7_Tooling:		Date:		R	tun Star	1/1	R1*
	QC:			SPC (Y/N):		Date:			Sto	" *N	R2*
Sequence ID/ Work Center II	Operati Descrip			Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nb	•									
D407-667-145	Rev C (DEO)				SAC						
DS19565	Α	1			15						
DS19628	Α	×	SP		9-89					-	1
100			<u> </u>	0.00	12/11/07				0		
*100*	DOCUM	ENT CONTRO	L		Ĺ			JK)	-42 ( v	MIT	12-11-
DÇ		Memo		0.00					1007	110)	10 10
Document Control	•	Photocopy b	luefile and create labe	els as per PPP D407-667-105	CHG005						
	,				· J		*				
110				0.00							
*110*	Packaging	5		<u>.</u>				W	17-	10-29	1
Packaging		Memo		0.00			(				1
Packaging ·											

	_	۵		
DQA:	Date:		•	
				<del></del>

NCR: Yes / No

# WORK ORDER NON-CONFORMANCE / UPDATE

									QA Closed:	Date	:		
Work Order	r:				DISPOSITION			AGAINST DE	PARTMENT	PROCESS			
Part No	0				Rework Scrap Use-as-is Work Order Update	4 1	Skid-tube  Machining  noforming  Large Fab	Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other		
Root				Descri	ption of work order update	Initial	Act	ion	Sign &	<u> </u>			
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	Descr	ription	Date	Verification	QC Inspector		
Doc/Data													
Equip/Tooling													
Operator													
Material													
Setup													
Other					4								
Process					3								
Supplier													
Training													
Unapproved	1.						LT CATE CORV						
		<u> </u>				AULT CATE	GORY						
Landin	_				General	<u> </u>			1	<del>[</del>			
-	Bending			_	Bend	Grain			Ovalized		Pressure/Forced		
-	Centre No	ot Concer	ntric to (	o/s	BOM/Route	Hardwa		_	Over/Under	<u> </u>	Temperature/Cure		
-	Cracks	o :		-	Broken/Damaged	<b>—</b>	ion Incomplete		Part Incorre	-	Weld		
-	<del></del>				Burrs	<del></del>	tions Incomplete/l	Unclear	Part Lost/M	issing	Wrong Stock Pulled		
-	<del>  </del>				Contamination		enance		Part Moved				
	Heat Treat Countersink				4	Mislabe		<u> </u>	Positioned V				
-	Inspection Strip in Tube Cut Too Short Ripples in Bend Drill Holes					Misrea Offset	u		Power Loss/	surge	Other		
-					——————————————————————————————————————								
-						Out of Calibration Out of Sequence							
-	Turning Sequence Finish Wave/Twist in Tube Folio					<del></del>	•						
	vvave/ i w	istiii lut	76		ורטווט	I Joursia	e Dimensions						

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Quality Control

Item ID: D407-667 Revision ID: Item Name: Crosstube F			- 1	Accept	*N900	1100	)*	Setup	Start Stop	*NS1* *NS2*	
Start Date: Required Date Reference:	25/07/2012 :: 15/08/2012	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item Customer						14.12
Approvals:	Process Pla	an:	Date:			Date:			Run	Start Stop	*NR1* *NR2*
Sequence ID/ Work Center I	D	Operation Description		Set Up/ Run Hours 0.00	Tool ID	Tool #	Plan Code	Accept Qty	t Rej Qty		Reject Insp. Number Stamp
*120* CNC Bend 2 CNC Alpha 160 Be	ender	BENDING MACHINE -  Memo  Bend tube a		0.00 using CNC bender progra	um 407-fw		(	TW	- <i>-</i> -	12-/	10-29
130 *130*		QC15- Crosstube Dimer	nsional Check	0.00 CAS	17/10/30			(w)			

NCR:   Yes   No   No   No   No   No   No   No   N												D	QA:	Dat	te:	1.
Work Order:    Part No.	NCR: Y	/es	/ No				WORK ORDER NON-C	100	VFORM	ANCE / UPE	DATE				-	4
Rework   Skid-tube   Crosstube   Rework   Skid-tube   Crosstube   Recycle												QA Clos	sed:	Dat	:e:	٠
Rework Scrap Use-as-is Work Order Update Date Step Qty Or Non-conformance Cause Date Setup Other Date Setup	Work Orde	or.			-		DISPOSITION				AGAINST DE	PARTM	ENT/	PROCESS		
NCR No.	Work Orac	-''.	<u> </u>				Rework	]		Skid-tube	Crosstube	]		Water Jet	$\neg$	Engineering
Root Cause Date Step Otty Order Update Description of work order update Chief Eng Description Date Verification OC Inspector Doc/Data Equip/Tooling Operator Office	Part N	۱o.					Scrap		ſ	Machining	Small Fab	<b>⊢</b> ⊣				· —
Root Cause Date Step Qty or Non-conformance Chief Eng Description Date Verification QC Inspector  Doc/Data Equip/Tooling Coperator Chief Eng Description Date Verification QC Inspector  Operator Coperator Co							<u> </u>		t	· · ·	~ <u>-</u>	Rec/	Stor		$\dashv$	Other
Cause         Date         Step         Qty         or Non-conformance         Chief Eng         Description         Date         Verification         QC Inspector           Doc/Data Equip/Tooling Equip/Tooling (Operator)	NCR N	۱o. <sub>.</sub>		<del>-</del>			Work Order Update	]		Large Fab	Composite	]		Supplier		
Doc/Data	Root					Descri	ption of work order update		nitial	Act	ion	Sign	&			
Equip/Tooling Operator Operator Adaterial Setup Other	Cause		Date	Step	Qty	C	or Non-conformance	Ch	ief Eng	Descr	iption	Date	2	Verification	1	QC Inspector
Operator Material Setup Other Process Supplier Training Unapproved	Doc/Data															
Material Setup Other Other Process Supplier Training Unapproved Bending Gear General Bending Centre Not Concentric to O/S BOM/Route Grain Ovalized Over/Under tolerance Temperature/Cure	Equip/Tooling												1		İ	
Setup Other Process Supplier Training Unapproved Unapproved  Landing Gear  General Bending Centre Not Concentric to O/S BOM/Route  Bom/Route  Grain Hardware  Ovalized Over/Under tolerance Temperature/Cure								1				1			1	
Other Process Supplier Training Unapproved PAULT CATEGORY  Landing Gear General Bending Bending Bend Grain Ovalized Pressure/Forced Centre Not Concentric to O/S BOM/Route Hardware Over/Under tolerance Temperature/Cure	Material															
Process Supplier Training Unapproved Department of the Concentric to O/S Bom/Route FAULT CATEGORY  FAULT CATEGORY  General Grain Ovalized Pressure/Forced Department of the Concentric to O/S BOM/Route Hardware Over/Under tolerance Temperature/Cure	1 1															
Supplier Training Unapproved  FAULT CATEGORY  Landing Gear General Bending Centre Not Concentric to O/S BOM/Route  Grain Hardware  Grain Hardware  Ovalized Over/Under tolerance Temperature/Cure		$\Box$														
Training Unapproved FAULT CATEGORY  Landing Gear General Bending Bend Grain Ovalized Pressure/Forced Centre Not Concentric to O/S BOM/Route Hardware Over/Under tolerance Temperature/Cure	l <del>l</del>	$\sqcup$												•		
FAULT CATEGORY   FAUL	1 1															
FAULT CATEGORY  Landing Gear General  Bending Bend Grain Ovalized Pressure/Forced Centre Not Concentric to O/S BOM/Route Hardware Over/Under tolerance Temperature/Cure																
Landing Gear  Bending Bend Bend Centre Not Concentric to O/S BOM/Route  General  Grain Hardware  Ovalized  Over/Under tolerance Temperature/Cure	Unapproved							1	T CATE	CORV	<del></del>	1				
Bending Bend Grain Ovalized Pressure/Forced Centre Not Concentric to O/S BOM/Route Hardware Over/Under tolerance Temperature/Cure	1 1 1 1 1 1 1 1 1 1							AUL	LICATE	JURY						
Centre Not Concentric to O/S BOM/Route Hardware Over/Under tolerance Temperature/Cure	Landi						7	Г	Crain			Journaliza	4			Drossuro/Forcod
		-	<b>-</b>						4	r0	-	-4		toloranco	$\vdash$	· ·
Cracks Broken/Damaged Inspection Incomplete Part Incorrect Weld		-	<b></b>					-	1		-	<b>-</b>   '			<u> </u>	Weld
		$\vdash$	Cracks Broken/Damaged Crushed/Crimped Burrs					$\vdash$	₹ `		Incloar	⊣				Wrong Stock Pulled
Cuffs   Contamination   Maintenance   Part Cost/Missing   Wrong Stock Fulled		-		-	-	$\vdash$	-1	·	Jincieal	<b>⊣</b>		331118		TALLOUR STOCK Laulea		
								<del></del>				-		Vrong		
Inspection Strip in Tube Cut Too Short Misread Power Loss/Surge Other		<del></del>					-	<b>⊢</b>			<b>⊣</b>				Other	
Ripples in Bend Drill Holes Offset		<b>├</b> ─ <b>│</b>										١. ٥٠٠٠٠ ١		Jul 80	L	

Out of Calibration
Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

# Work Order ID 88091

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Augusi-27-12 1		· · A-= - : : : .									
Item ID: Revision ID:	D407-667-1	4		Accept	*N90	0040	1100	<b>)</b> * s	Setup Sta	I	S1*
Item Name: Start Date: Required Date: Reference:	Crosstube Fw 25/07/2012 15/08/2012	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Ite			Sto	IN	S2*	
Approvals:		in:				Date:		I	Run Sta Sto	!/	R1*
Sequence ID/ Work Center II	)	Operation Description		Set Up/ Run Hours	Tool II	D Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
*140* Crosstubes		Crosstubes Memo		0.00					<del></del>	1 =	
Crosstubes		1- scrib bate 2-Drill pilot 667-145. D towers, as p 3-Drill and DT8542 as sides. 4-Flip tube off existing 5-Drill pilot Drill only th	ch # inside of cuff  holes in tube using dri rill all (3) top holes use er QS10010.  Ream all holes in tube per Dwg D407-667-14;  and switch drilling Jigs holes using "f" pins.  holes using drill Jig Di e top (2) holes.	G POSITIONING ***********************************	T8541 & holes on all four t. Locate Jigs	e Haelie	P		e.		
		145.Note: F	wd side has 3x top hole	ig DT8787FWD as per Dwg ss. g DT8787AFT as per Dwg D		,					

9-C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint.

NCR:													
									QA Closed:	Date:	, ,		
Work Orde	or.					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part N	•					Rework Scrap Use-as-is		(1	Skid-tube Machining noforming	Crosstube Small Fab Finishing	-1	Water Jet d. Eng. Coor. re/Packaging	Engineering Quality Other
NCR f	۷o۰				<del> </del>	Work Order Update	]		Large Fab	Composite	]	Supplier	
Root						ption of work order update	1	Initial	Act		Sign &		
Cause		Date	Step	Qty	(	or Non-conformance	Cr	nief Eng	Descr	ription	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling													
Operator													
Material			İ										
Setup													
Other	Щ												
Process	Ш												
Supplier	Ш												
Training													
Unapproved			<u> </u>			31			2004			<u> </u>	
							-AUI	LT CATE	GORY		<del> </del>		
Landi		1				General	_	J		_	ا مات	Г	Pressure/Forced
	$\vdash$	Bending			_  -	Bend	-	Grain		-	Ovalized		Temperature/Cure
	$\vdash$	Centre No	ot Concei	ntric to	<sup>0/s</sup>  -	BOM/Route	-	Hardwa		-	Over/Under Part Incorre	_	Weld
		Cracks				Broken/Damaged	-	4 '	ion Incomplete		4	<del> </del>	Wrong Stock Pulled
	-	Crushed/Crimped.				Burrs	-	-	tions Incomplete/l enance	Jnciear –	Part Lost/M		_ wrong stock Pulled
	Cuffs				-	Contamination	-	-		-	Part Moved		
	Heat Treat				-	Countersink	$\vdash$	Mislabe		-	Positioned \	_	Other
	Inspection Strip in Tube				<u> </u>	Cut Too Short Drill Holes	Misread			L	Power Loss,	/Surge	Totaler
	Ripples in Bend				_	<b>=</b>	Offset						
	Torque Waves in Extrusion				"	Drawing	Out of Calibration						
I	1	Turning Sequence				Finish	Out of Sequence						

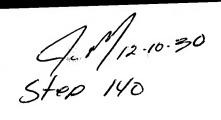
Outside Dimensions

DQA:

Date:

Wave/Twist in Tube

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***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** , VERIFIED BY:*****
1- Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill all (3) top holes. Holes facing inboard.
***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****, VERIFIED BY:*****
2- Drill Fwd rivet holes using drill Jig DT8787 fwd as per Dwg D407-667-145.
Note: Fwd side has 3x top holes.Facing inboard.
3- C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint.
4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins .Drill ONLY 2 top holes ONLY plug most bottom holes to prevent accidental drilling. Drill holes and ream using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill only the top (2) holes.
***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** , VERIFIED BY:X
5- Drill Aft rivet holes using drill Jig DT8787 aft as per Dwg D407-667-145.
***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** , VERIFIED BY:******
6- C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint.

7- Scribe part # and batch # using vibrating stylus as per Dwg D407-667-145

Inside of Cuff (Do not engrave on outside of tube)

8- \*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\* Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D407-667-145

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		**		
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	* * *			**************************************
Mark .				*

Page 4

August-27-12 10:39:05 AM

Ifem ID: Revision ID:	D407-667-10			Accept	*N900	040	100	<b>)*</b> s	Setup Star	1/1	S1*
Item Name: Start Date: Required Date Reference:	Crosstube Fwd 25/07/2012 : 15/08/2012	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item 1 Customer:	ID:			Stop	° *N	S2*
Approvals:		n:				ate:	-	Į	Run Star Stoj	I <b>/</b> I	R1* R2*
Sequence ID/ Work Center I	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
			spect for surface damag	WHEN HANDLING CROSST e. Repair damage within lim							
150		QC5- Inspect part compl	eteness to step on W/O	0.00							
*150* QC Quality Control		Memo *** WEAR	LATEX GLOVES WHE	0.00 (10)	1/10/31 E***				-		-
160				0.00							
*160* HandFXtube Hand Finishing Cro	osstubes	Memo *** WEAR	LATEX GLOVES WHE	0.00 ON HANDLING CROSSTUB	F***				$-\varphi$	_Ø_	12-11-1
· ····		,, E. I.	5. 1. 2/1 020 720 WIII	arrandente encograde	L)						

1-CLEAN CROSSTUBE WITH WASH'N WIPE

									DQA:	Date:	· · · · · · · · · · · · · · · · · · ·
NCR: Yes	/ No				WORK ORDER NON-C	ONFORM		QA Closed:			
Work Order:					DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
					Rework		Skid-tube	Crosstube		Water Jet	Engineering
Part No.					Scrap		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
					Use-as-is		noforming	Finishing		re/Packaging	Other
NCR No.					Work Order Update		Large Fab	Composite	·	Supplier	
							,	· <u>L</u>	ı		
Root				Descri	ption of work order update	Initial	Ac	ction	Sign &		
Cause	Date	Step	Qty	c	or Non-conformance	Chief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data											
quip/Tooling	1										
Operator	1				•						

#### Training Unapproved **FAULT CATEGORY Landing Gear** General Pressure/Forced Bending Bend Grain Ovalized BOM/Route Temperature/Cure Centre Not Concentric to O/S Hardware Over/Under tolerance Broken/Damaged Weld Cracks Inspection Incomplete Part Incorrect Part Lost/Missing Wrong Stock Pulled Crushed/Crimped. Burrs Instructions Incomplete/Unclear Part Moved Maintenance Cuffs Contamination Positioned Wrong Mislabeled **Heat Treat** Countersink Other Inspection Strip in Tube Misread Power Loss/Surge Cut Too Short Drill Holes Offset Ripples in Bend Torque Waves in Extrusion Drawing Out of Calibration Out of Sequence Turning Sequence Finish Outside Dimensions Wave/Twist in Tube Folio

Material Setup Other Process Supplier August-27-12 10:39:05 AM

Item ID:

D407-667-105

Accept

\*N900040100\*

Setup Start

**Revision ID:** Item Name:

Start Date:

Crosstube Fwd

**Required Date:** 15/08/2012

25/07/2012 Start Qty: 1.00

Req'd Qty: 1.00

Date:

**Cust Item ID:** 

**Customer:** 

Reference:

Approvals:

Process Plan:

QC:

Date: \_\_\_\_\_

Tooling:

SPC (Y/N):

Date:

Tool#

Date:

Start

Stop

Run

Sequence ID/ Work Center ID Operation Description

Set Up/ **Run Hours**  Tool ID

Plan Code

Accept Qty

Reject Qty

Reject Insp. Number Stamp

180

\*180\* Outsource2

Memo

Outsource process - NDT per QSI038 4.1

0.00

0.00

Outsource process - NDT

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

**OUTSIDE SERVICE -CROSSTUBES** 

Liquid Penetrant Inspection as per QSI 038 Or Issue P/O: 15302 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order

190

Packaging

\*100\* Packaging

Memo

0.00

0.00

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\* Packaging

Inspect for transit damage

Ensure copy of NDT results attached to work order.

200

QC5- Inspect part completeness to step on W/O

0.00

\*200\*

OC

Memo

0.00

Quality Control

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

Inspect for damage & ensure results are as per Dwg D206-667-145

1/12-14-01

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NCR: Ye	·												
										QA Closed:	Da	te:	
Work Orde	r·		•		DISPOSITION				AGAINST D	EPARTMENT	/PROCESS		
WOIK Older	l			<del></del>	Rework	٦		Skid-tube	Crosstube	7	Water Jet		Engineering
Part No	0.				Scrap	1		Machining	Small Fab	Pro	d. Eng. Coor.	H	Quality
	~· <u></u>				Use-as-is	┪ ┃		noforming	Finishing	_	re/Packaging		Other
NCR N	0.				Work Order Update	┪┃		Large Fab	Composite	Supplier			
										- <del></del>	<del></del>		
Root					ption of work order update		nitial		tion	Sign &			
Cause	Date	Step	Qty		or Non-conformance	Ch	ief Eng	Desci	ription	Date	Verificatio	n	QC Inspector
Doc/Data													
Equip/Tooling													
Operator	_												
Material	_												
Setup													
Other													
Process	_								]	ļ			
Supplier	4												
Training													
Unapproved		l	1				T CATE	CORV			<u> </u>		
Landin	g Gear				r General	AUL	I CATE	JORT					
	<del></del> ,			Γ	Bend		Grain		Г	Ovalized		П	ressure/Forced
}	Bending Contro Not Concentris to C/S			n/s  -	BOM/Route		Hardwa	ro	F	Over/Unde	r tolerance	-	emperature/Cure
}	Centre Not Concentric to O/S			" <u> </u>	Broken/Damaged	-	1	on Incomplete	-	Part Incorre		<b>  </b>	Veld
-	Cracks Crushed/Crimped				Burrs		1	ions Incomplete/	Unclear –	Part Lost/M		<del></del>	Vrong Stock Pulled
<b>+</b>	Crushed/Crimped Cuffs			_	Contamination		Mainte	*	-	Part Moved	_	<b>!</b>	
<u> </u>	Heat Treat			Countersink	_	Mislabe			Positioned				
-	Inspectio		Tube	<u> </u>	Cut Too Short	Misread			-	Power Loss	<del>-</del>	$\prod c$	)ther
ŀ	Ripples in				Drill Holes	_	Offset		L		. 0		
ļ	Torque Waves in Extrusion			,	Drawing	Out of Calibration							

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

\*88091\* Page 6 August-27-12 10:39:05 AM == .= . Item ID: D407-667-105 Accept \*N900040100\* Setup Start Revision ID: Item Name: Crosstube Fwd Start Date: Start Qty: 1.00 25/07/2012 **Cust Item ID:** -**Required Date:** 15/08/2012 Req'd Qty: 1.00 **Customer:** Reference: Run Approvals: Process Plan: Date: Tooling: Date: Stop Date:\_\_\_\_\_ **SPC (Y/N):** Date: Sequence ID/ **Operation** Set Up/ Tool ID Tool# Plan Reject Reject Accept Insp. Work Center ID **Description** Qty **Run Hours** Qty Number Stamp Code 204 0.00 \*204\* HandFXtube 0.00 Memo Hand Finishing Crosstubes \*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\* 1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN CROSSTUBE BEFORE CHEMICAL CONVERSION

206

QC7-Inspect Chemical Conversion Coat

0.00

Memo

0.00

Quality Control

\*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\*

12-11-3

NCR: Y	es / No				WORK ORDER NON-C	ONF	ORN	MANCE / UPD	DATE			•
	,							•		QA Closed:	Dat	e: , •
Work Orde	er:				DISPOSITION				_	EPARTMENT,	-	
Part N	lo				Rework Scrap Use-as-is		ſ	Skid-tube Machining noforming	Crosstube Small Fab Finishing	<b>-</b>	Water Jet d. Eng. Coor. e/Packaging	Engineering Quality Other
NCR N	lo			<del></del>	Work Order Update			Large Fab	Composite		Supplier	
Root				Descri	ption of work order update	Init	ial	Act	ion	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief	Eng	Descr	iption	Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling				:								
Operator												
Material												
Setup				•								
Other	<b>-</b>											
Process	_											
Supplier												
Training	_											
Unapproved		1	<u></u>			1		CORY	·			
						AULT (	AIE	GURY				
Landir	ng Gear			<u> </u>	General	Пс			Г	Ovalized		Pressure/Forced
	Bending			o (s	Bend BOAA/Boute	<del></del>	ain		-		**!***	Temperature/Cure
ŀ	Cracks	lot Conce	ntric to	<sup>U/S</sup>  -	BOM/Route	_	rdwa		-	Over/Under Part Incorre		Weld
	<del></del> -	/Crimped		-	Broken/Damaged	-	•	ion Incomplete iions Incomplete/L	in close	Part Lost/M		Wrong Stock Pulled
	Cuffs	Crimpea		-	Burrs Contamination	<del></del>		ions incomplete/t	nciear –	Part Moved	1221LIB	Wrong Stock Palled
	Heat Tre	a <b>t</b>		-	Countersink	$\vdash$	islabe		<u> </u>	Positioned \	Mrong	
Inspection Strip in Tube Cut Too Short						$\vdash$	isreac		<del> -</del>	Power Loss/	_	Other
	Ripples i		iuue		Drill Holes	$\vdash$	isreac fset	4	L	rower coss/	Juige	Louiei
}		Naves in I	Extrusio	, H	Drawing	$\mathbf{H}$		Calibration				· · · · · · · · · · · · · · · · · · ·
	I I O HUE	ANAC2 III I	LACI 0310	''	101044118	1 100		zanoration				

Out of Sequence

Outside Dimensions

Date:

DQA:

Turning Sequence

Wave/Twist in Tube

Finish

August-27-12 10:39:05 AM

Page 7

Item ID: D407-667-105 Accept \*N900040100\* Setup Start **Revision ID:** Crosstube Fwd Item Name: **Start Date:** 25/07/2012 Start Otv: 1.00 **Cust Item ID: Required Date:** 15/08/2012 Reg'd Oty: 1.00 **Customer:** Reference: Run Process Plan: \_\_\_\_\_ Date: \_\_\_\_ **Approvals:** Tooling: Date: Stop Date: \_\_\_\_\_ SPC (Y/N): Date: Sequence ID/ Operation Tool ID Set Up/ Tool # Plan Accept Reject Reject Insp. **Work Center ID** Description Qty **Run Hours** Code **Qty** Number Stamp 210 0.00 SprayPaint \*210\* 1 0 0 SprayPaint 0.00 Memo Spray Painting \*\*\* WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE\*\*\* 1-Prime inside and outside crosstube as per OSI 005 4.2 2-Paint outside crosstube with White Imron as per QSI 005 4.2 PRIME: 122 888 Start Time: 10:00 Fininsh Time: 10:45 PAINT: 123307 Start Time: 3:00 Finish Time: 3:45 220 QC14- Inspect Spray Paint 0.00 12-11-3 0.00 Memo Then, Wrap in plastic bag to protect from scratches Quality Control

											DQA:	Date:	•
NCR:	Yes ,	/ No				WORK ORDER NON-C	ON	NFORM	ANCE / UPI				• -
											QA Closed:	Date:	
Work Orde	er:					DISPOSITION				AGAINST DE	PARTMENT,	PROCESS	
Part f	- No					Rework Scrap Use-as-is Work Order Update		Therm	Skid-tube  Machining noforming  Large Fab	Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root			***		Descri	ption of work order update	1	nitial	Act	tion	Sign &		
Cause		Date	Step	Qty	C	or Non-conformance	Ch	ief Eng	Desci	ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved													
							AUL	T CATE	GORY				
Landi	Centre Not Concentric to O/S Cracks B Crushed/Crimped Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend D				General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes		Instruct Mainte Mislabe Misread Offset	on Incomplete ions Incomplete/i enance eled	Unclear	Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned N	ct sissing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other	
	1 17	orque W	'aves in E	:xtrusio	n	Drawing	1	Out of (	Calibration				

Out of Sequence

Outside Dimensions

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Turning Sequence

Wave/Twist in Tube

Finish

Quality Control

August-27-12 10:39:05 AM Item ID: D407-667-105 Accept \*N900040100\* Setup Start Revision ID: Item Name: Crosstube Fwd Start Date: 25/07/2012 Start Qty: 1.00 **Cust Item ID:** Required Date: 15/08/2012 Rea'd Otv: 1.00 **Customer:** Reference: Run Approvals: Process Plan: \_\_\_\_ Date: **Tooling:** Date: Stop QC: Date: SPC (Y/N): Date: .Sequence ID/ Operation Set Up/ Tool ID Tool # Reject Plan Accept Reject Insp. Work Center ID Description Qty **Run Hours** Code Qty Number Stamp 0.00 Crosstubes \*23U\* Grosstubes 0.00 Memo Crosstubes 1-Abrade mating surfaces of support and crosstube with 400 grit sandpaper. clean the area with 4105S wash 'n' wipe 2-Install supports with Proseal 890 per\_DSI9565 and QSI 015 A/R Proseal 890 Batch: 123103 3- Torque bolts as per dwg 4-Install nut plates as per Dwg D407-667-145. Touch-up rivet heads with Imron QC5- Inspect part completeness to step on W/O 0.00 12-11-4

0.00

Memo

												DQA:	Da	te:	
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Work Orde	or.				·	DISPOSITION				AGAINST DE	EP#	ARTMENT/	PROCESS		
WOIK OIG	-					Rework	1		Skid-tube	Crosstube	7		Water Jet		Engineering
Part f	No.					Scrap		ı	Machining	Small Fab	1	Prod	d. Eng. Coor.		Quality
	_					Use-as-is			noforming	Finishing	]	Rec/Stor	e/Packaging		Other
NCR f	۷o. <sub>-</sub>				· <del></del>	Work Order Update	<u>.</u>		Large Fab	Composite	_		Supplier		
Root		_			Descri	ption of work order update		Initial	Act	ion		Sign &			
Cause		Date	Step	Qty	(	or Non-conformance	Ch	ief Eng	Descr	iption	$\perp$	Date	Verificatio	n	QC Inspector
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Cracks						Broken/Damaged		Inspect	ion Incomplete		P	art Incorrec	ct .		Weld
	Crushed/Crimped.					Burrs		Instruct	ions Incomplete/U	Jnclear	P	art Lost/Mi	ssing		Wrong Stock Pulled
	Cuffs					Contamination		Mainte	enance		P	art Moved			
Ä		Heat Trea	at			Countersink		Mislabe	eled		P	ositioned <b>V</b>	Vrong		_
	$\Box$	Inspectio	n Strip in	Tube		Cut Too Short		Misread	d		F	ower Loss/	Surge		Other
		Ripples in	Bend			Drill Holes	Г	Offset		_					

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence
Wave/Twist in Tube

Torque Waves in Extrusion

Drawing Finish

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\*88091\*

Page 9

August-27-12 1	0:39:05 AM											
Item ID: Revision ID: Item Name:	D407-667-10			Accept	*N900040	1100	)*	Setup	Start Stop	*N:	S1*	
Start Date: Required Date: Reference:	25/07/2012	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item ID: Customer:						7/"	
Approvals:	Process Pla	n:	Date:		Date:			Run	Start Stop	*NI *NI	₹1* ₹2*	
Sequence ID/ Work Center II 250 *250* Packaging	D	Operation Description Pick Kit		Set Up/ Run Hours 0.00	Tool ID Tool #	Plan Code	Accep Qty	t Rejo Qty		Reject Number	Insp. Stamp	
260 *260* QC Quality Control		QC4- 100% Inspect kit  Memo	s for completeness	0.00 DA 15 0.00 D			)	_			D-//-	-6.
270 *270* Packaging Packaging		Packaging  Memo  Identify an  Location:  PPP Rev:	d pack for shipping as per	0.00 0.00 PPP D407-667-105						12/11	750	8_

NCR: Y	es /	No				<b>WORK ORDER NON-</b>	CON	<b>NFOR</b>	MANCE / UPI	DATE			•
											QA Closed:	Date:	
Work Orde	er:					DISPOSITION	,			AGAINST DE	PARTMENT,		
Part N						Rework Scrap Use-as-is Work Order Update			Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	<b>⊣</b>	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	otion of work order update		nitial	Act	tion	Sign &		
Cause	1	ate	Step	Qty	C	or Non-conformance	Ch	ief Eng	Desci	ription	Date	Verification	QC Inspector
Doc/Data							}						
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Landi	ng Gea					General r	AUL	.I CAIE	GONT			· · · · · · · · · · · · · · · · · · ·	
Landi		nding				Bend		Grain		Г	Ovalized		Pressure/Forced
	—	•	Concer	ntric to C	<sub>0/5</sub>	BOM/Route	$\vdash$	Hardwa	are		Over/Under	tolerance	Temperature/Cure
	⊢⊣				<i>'</i>	Broken/Damaged	一	4	ion Incomplete		Part Incorre		Weld
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	Cuffs . Contamination				Contamination		Mainte	•		Part Moved			
* Heat Treat Countersink					Countersink		Mislabe	eled		Positioned \	<b>N</b> rong		
Inspection Strip in Tube Cut Too Short					Cut Too Short		Misrea	d		Power Loss,	/Surge	Other	
	Rip	ples in E	Bend			Drill Holes		Offset		,		_	
	To	que Wa	ves in E	xtrusion		Drawing		Out of	Calibration				
	Tui	Torque Waves in Extrusion Drawing Turning Sequence Finish						Out of	Sequence				

Outside Dimensions

Date:

DQA:

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Wave/Twist in Tube

August-27-12 10:39:05 AM

Item ID: D407-667-105 Accept \*N900040100\* Setup Start **Revision ID:** Item Name: Crosstube Fwd 25/07/2012 Start Qty: 1.00 Start Date: **Cust Item ID: Required Date:** 15/08/2012 Req'd Qty: 1.00 **Customer:** Reference: Start Run Approvals: **Process Plan:** Date: \_\_\_\_\_ Tooling: Date: Stop QC: \_\_ Date: SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool # Plan Reject Tool ID Reject Accept Insp. **Work Center ID** Description Qty **Run Hours** Code Qty Number Stamp 280 QC21- Final Inspection - Work Order Release 0.00 \*280\* 0.00 Memo Quality Control

										DQA:	Date:	•
NCR: Y	es / No				WORK ORDER NON-O	CONF	ORN	ANCE / UP	DATE			•
									·	QA Closed:	Date:	
Work Orde	ar:				DISPOSITION				AGAINST DE	PARTMENT,	/PROCESS	
WOIK OIGE	=======================================				Rework	7 <b> </b>		Skid-tube	Crosstube	]	Water Jet	Engineering
Part N	10.				Scrap	1		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
					Use-as-is	]	Therm	oforming	Finishing	Rec/Sto	re/Packaging	Other
NCR N	No				Work Order Update	]		Large Fab	Composite	]	Supplier	
Root				Descri	ption of work order update	lni	tial	Ac	tion	Sign &		
Cause	Date	Step	Qty	(	or Non-conformance	Chie	f Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling		ļ										
Operator						ł						
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Other											ļ	
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						AULT	CATE	GORY				
Landi	ng Gear			_	General				·	1		٦
	Bending			<u> </u>	Bend	$\prod_{i}$	irain		<u> </u>	Ovalized		Pressure/Forced
	Centre N	ot Conce	ntric to	D/S	BOM/Route	$\vdash$	lardwa	•		Over/Under	—	Temperature/Cure
	Cracks				Broken/Damaged	$\vdash$		on Incomplete		Part Incorre	<del> </del>	Weld
	Crushed/	'Crimped			Burrs	<del></del>		ions Incomplete/	/Unclear	Part Lost/M	_	Wrong Stock Pulled
	Cuffs				Contamination	$\vdash$		nance		Part Moved		
	Heat Trea	at			Countersink	<u></u>	∕Iislabe	led	_	Positioned \		7
	Inspectio	n Strip in	Tube		Cut Too Short	<b>∐</b> ^	∕lisreac		1	Power Loss,	/Surge	Other
	Rinnles in	Rend			Drill Holes	1 10	Offcet					

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

## **Picklist Print**

August-27-12 10:39:09 AM

Work Order ID: 88091

D407-667-105

Parent Item Name: Crosstube Fwd

\*88091\*
\*D407-667-105\*

**Start Date: 25/07/2012** 

**Required Date: 15/08/2012** 

Start Qty: 1.00

Required Qty: 1.00

Comments:

Parent Item:

IPP Rev:F 05.09.01Add holes for compatibility with Bell SkidtubesKJ/JLM

IPP Rev:G 08-05-16 chg QC6 to QC15 DD verified by:EC

IPP Rev:H 08-06-03 update as per DSI9415 (ECN1198) DD verified by:ec IPP Rev:I 08-07-14 add (scribe inside of tube) seq.6 DD verified by:EC IPP Rev:J 08-07-28 update as per (par 08-013) DD verified by:EC

 IPP Rev K
 09.01.06
 ECN 08-562
 EC
 verified by:DD IPP REV:L

 11.08.05
 PER ECN 11-615 DD VERF:EC
 IPP REV:M
 12.08.20

DSI9628 revA (ECN12-631) DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D407-667-105TRN		Manufactured	No	B894	1-1	110	Each	0.0000	<u>-</u> 1	1 -	1.	<u> </u>	~ <del>~</del>
*D407-667	7-105TF	N*		D0747	1 1				**			Z-10	-29
D2873-043		Manufactured	No			230	Each	48.0000	2	2			•
*D2873-04 Nut Plate Assembly	13*								**		A	12-11	-4
	•			<b>Location</b>		Loc	<u>Oty</u>	Loc Code					
				LG052			48		_		_		
					72644		2				_		
ž.					82949 <b>§</b> 4386		6 40		_	<u>(S)</u>	_		
DŽ873-045		Manufactured	No		<u> </u>	230	Each	1.0000	2	2	<del></del>		
*D2873-04 Nut Plate Assembly	15*			*,	_				**	6	A	8 12-11	1-4
				Location	89253	Loc	Otv	Loc Code		3			
				LG052		2300	1	200 0000					
**					82947		1		<u> </u>		_		

			DQA:	Da
NCR:	Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE		

									QA Closed:	Date	: · · ·
Work Orde	r·				DISPOSITION			AGAINST DE	PARTMENT	PROCESS	
Part N	0				Rework Scrap Use-as-is Work Order Update	Therm	Skid-tube  Machining  noforming  Large Fab	Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root		]		Descri	ption of work order update	Initial	Ac	tion	Sign &		
Cause	Date	Step	Qty	:	or Non-conformance	Chief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data											
Equip/Tooling		1									
Operator [		1									
Material											
Setup											
Other											
Process	_									ļ	·
Supplier							<u> </u>				
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	Bending				Bend	Grain		<u> </u>	Ovalized	_	Pressure/Forced
	Centre N	ot Conce	ntric to C	D/S	BOM/Route	Hardwa			Over/Under		Temperature/Cure
_	Cracks			-	Broken/Damaged	<b>—</b>	ion Incomplete		Part Incorre	F-	Weld
	Crushed/Crimped Burrs					$\mathbf{H}$	tions Incomplete/	'Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Cuffs Contamination				Mainte		<u> </u>	Part Moved			
	Heat Treat Countersink				Mislabe	eled		Positioned \		_	
<u> </u>	Inspection Strip in Tube Cut Too Short					Misread	d		Power Loss/	'Surge	Other
	Ripples in Bend Drill Holes					Offset					
	Torque Waves in Extrusion Drawing						Calibration				
	Turning S	Sequence			Finish	Out of !	Sequence		<del> </del>		
	Wave/Tv	vist in Tul	ne .	1	Folio	I lOutside	Dimensions				

August-27-12 10:39:09 AM

Work Order ID: 88091 \*88091\* D407-667-105 Parent Item: \*D407-667-105\* Parent Item Name: Crosstube Fwd **Required Date: 15/08/2012** Start Date: 25/07/2012 Required Qty: 1.00 Start Qty: 1.00 D2891-1 230 Manufactured Each 13.0000 \*D2891-1\* \*\* 12-11-4 **3** 2.25 Support 88892 Location Loc Qty Loc Code LG051 11 84164 11 LG052 72822 75176 D3595-063-395 230 Manufactured Each 112.0000 \*\* 12-11-4 **RUBBER CUSHION** Location Loc Oty Loc Code LG051 112 2 82223 110 MS20601-AD4W10 Purchased No 230 Each 234.0000 Al 12-11-4 \*MS20601-AD4W10\* \*\* Location Loc Qty Loc Code LG050 233 120676 3 121690 100 100 T25125 30 LG051

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												DQA:	Dai	te:	
NCR:	Yes	/ No				WORK ORDER NON-	100	NFORM	MANCE / UPI	DATE	04	Closed:	 Da1	to:	
	-					DICROCITION				ACAINST D				.e.	
Work Orde	er:					DISPOSITION				AGAINST DI	PAK	( I IVIEIV I /	PROCESS		
Part f						Rework Scrap Use-as-is Work Order Update		Therm	Skid-tube  Machining  noforming  Large Fab	Crosstube Small Fab Finishing Composite			Water Jet J. Eng. Coor. e/Packaging Supplier		Engineering Quality Other
Root					Descri	tion of work order update		Initial	Act	tion	S	ign &			
Cause		Date	Step	Qty	,	or Non-conformance	Ch	nief Eng	Desci	ription		Date	Verificatio	n	QC Inspector
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Other					İ								ı		
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Training															
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						F	AUI	LT CATE	GORY						
Landi	ng (	ear				General		_							7
Bending Bend								Grain			Ova	alized		L	Pressure/Forced
		Centre No	ot Conce	ntric to	o/s	BOM/Route	L	Hardwa	ire		Ov	er/Under	tolerance	L	Temperature/Cure
		Cracks				Broken/Damaged	L	Inspect	ion Incomplete		Par	rt Incorre	ct		Weld
		Crushed/	Crimped			Burrs		Instruct	tions Incomplete/	Unclear	Par	rt Lost/Mi	ssing		Wrong Stock Pulled
		Cuffs				Contamination		Mainte	enance		Par	rt Moved			
		Heat Trea	at			Countersink		Mislabe	eled		Pos	sitioned V	Vrong	_	_
		Inspectio	n Strip in	Tube		Cut Too Short		Misread	d		Po	wer Loss/	Surge		Other

Offset

Out of Calibration
Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Picklist Print
August-27-12 10:39:09 AM

Work Order ID: 88091		*8	8091*						
Pärent Item: D407-667-105 Pärent Item Name: Crosstube Fwd		*D	407-667-10	ገ5*		S.	. D	(07/2012	D 1 15/00/0010
Tarent item ivame. Crosstude i wu							rt Date: 25 art Qty: 1.0		Required Date: 15/08/2012 Required Qty: 1.00
M\$21920-20	Purchased	No		230	Each	127.0000	4	4	
*MS21920-20*							**		Af 12-11-4
Clamp (per MIL-DTL-8783C)			123346					9	
			<b>Location</b>	Loc	: Oty	Loc Code			
			LG050		127				
			116799		8				
			120676		8				
			121067 121274		2 2				
			121274		57				Δ
			122518		50				
AÑ5-10A	Purchased	No		250	Each	397.0000	101	10	
*ANG HOW	1 41 51145 5 4						**		173577
**************************************								///	123533 XP
			Location	Loc	: Qty	Loc Code			<b>.</b>
	`		ST337		297				
5m2			118191		80				
- 747 - €			121243		100				
			122151		117				<b>A6</b>
			ST362		100				<b>4</b> ()
			122800		100				
AN5-30A	Purchased	No		250	Each	105.0000	4	4	
*AN!5-30/A* BÔLT							**		12-11-10
BÖLT									1013
- <i>K</i>			<b>Location</b>	Loc	Qty	Loc Code			
5m/s			ST337		50				
			122416		50				
			ST339		55				
•			117514.		7				
			122141		48			<del>-4</del> x-	
			•					•	

											DQA:	Date:	•
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		•						,	•		QA Closed:	Date:	
Work Ord	or:					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
WORK OIG	ег.					Rework	1		Skid-tube	Crosstube	]	Water Jet	Engineering
Part I	No.					Scrap		ſ	Machining	Small Fab	4	d. Eng. Coor.	Quality
						Use-as-is			noforming	Finishing	Rec/Sto	re/Packaging	Other
NCR I	No.					Work Order Update	ا ل		Large Fab	Composite	]	Supplier	
Root					Descri	ption of work order update		Initial	Acti	on	Sign &		
Cause		Date	Step	Qty	(	or Non-conformance	Ch	nief Eng	Descri	ption	Date	Verification	QC Inspector
Doc/Data							1						
Equip/Tooling													
Operator													
Material			i								1		
Setup	Ш												
Other													
Process													1
Supplier	Ш												•
Training													
Unapproved													
						F	AUI	LT CATE	GORY				
Landi	ng (	Sear			_	General	_	7			7		-
		Bending			_	Bend	<u></u>	Grain			Ovalized		Pressure/Forced
	_	Centre No	ot Conce	ntric to	o/s	BOM/Route		Hardwa	re		Over/Unde	<del>-</del>	Temperature/Cure
	<u></u>	Cracks				Broken/Damaged		-1	on Incomplete		Part Incorre	<del>                                     </del>	Weld
						Burrs		-{	ions Incomplete/U	nclear	Part Lost/N	-	Wrong Stock Pulled
		Cuffs				Contamination	<u>_</u>	Mainte	nance	_	Part Moved		
		Heat Trea	it			Countersink		Mislabe		-	Positioned	_	¬
		Inspectio	n Strip in	Tube	L	Cut Too Short		Misread	1		Power Loss	/Surge	Other
1		Ripples in	Bend		-	Drill Holes	1	Offset					

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

August-27-12 10:39:09 AM

Work Order ID: 88091

Parent Item:

D407-667-105

Parent Item Name: Crosstube Fwd

\*88091\* \*D407-667-105\*

Start Date: 25/07/2012

**Required Date: 15/08/2012** 

Start Qty: 1.00

Required Qty: 1.00

4 301 0000

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AN5-32A

AN960JD516

NAS1149D0563J Purchased

No

No

Location Loc Qty ST337 100 122416 50 122800 50

250

Each

ST339 101 120423 122151 96 ST340 100

121541 100 250 Each Loc Code

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MS21042L5

Purchased No

Purchased

Location Loc Qty ST338 1069059 2 250 Each

1,596.000

Loc Code

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Location Loc Qty Loc Code 300 488 121652 488 314 1000 122452 1000 ST300 108 108827 4 116105 116548 43 119109 48

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NCR:	NCR: Yes / No WORK ORDER NON-CONFORMANCE / UPDATE													
		<u>.</u>							•		QA Closed:	Date:		
Work Ord	er:					DISPOSITION				AGAINST DE	EPARTMENT/PROCESS			
Part No.					Rework Scrap Use-as-is Work Order Update			Skid-tube  Machining  noforming  Large Fab	Crosstube Small Fab Finishing Composite	1	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other		
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	$\vdash$	Centre No	ot Concer	ntric to	o/s	BOM/Route	<u> </u>	Hardwa			Over/Under	<del>-</del>	Temperature/Cure	
	—	Cracks			-	Broken/Damaged	$\vdash$	<b>-</b>	ion Incomplete		Part Incorre	<b>├</b> ─-	Weld	
	-	Crushed/	Crimped		ļ	Burrs	$\vdash$	4	tions Incomplete/I	Unclear	Part Lost/M	issing	Wrong Stock Pulled	
	-	Cuffs			<u> </u>	Contamination	$\vdash$	Mainte		_	Part Moved			
	Н	Heat Trea			<u> </u>	Countersink	_	Mislabe		ļ	Positioned V		7	
	-	Inspection		Tube	<u> </u>	Cut Too Short	<u> </u>	Misrea	d	L	Power Loss/	Surge	Other	
	$\boldsymbol{\vdash}$	Ripples in			ļ	Drill Holes	$\vdash$	Offset						
		Torque W			n	Drawing	_	4	Calibration					
Turning Sequence			į	Finish		Out of	Sequence							

Outside Dimensions

DQA:

Date:

Wave/Twist in Tube

DART AEROSPACE LTD	Work Order:	8809
Description: Crosstube High Fwd (407)	Part Number:	D407-667-105
Inspection Dwg: D407-667-145 Rev: DC		Page 1 of 1

DES 12/10/29

Required Dimension	Min	Max
Height	23.41	23.67
1/2 Span	45.81	46.07
Angle	54	56
Total Span	91.63	92.13
Bending Passes	6	
Crushing		6%

2.66 1.863

2.66 1.863

2.66 1.863

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A

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91.710

		Side A		Side B						
<b>Bending Pass</b>	es	17		125						
Crushing		4.8%		5.72						
Comments										
Sine 1 =	4.87.	crashi	Ó	it passes						
Sime BZ	5.77.	crush;	<del>-</del> @	15 DAVES						

QC15 Inspection	DAG/	
Date	11 / 17/4 20	
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Rev	Date	Change	Revised by	Approved
Α	07.02.06	New Issue	KJ/JM	
В	09.11.12	Dimensions updated per Dwg Rev C	KJ (A	
С	12.04.16	Added bending, crushing dimensions	KJ OK	H)

										DQA:	Date:	
NCR: Yes	/ No				WORK ORDER NON-	COI	NFORM	MANCE / UP		QA Closed:	Date:	
Work Order:					DISPOSITION	AGAINST DEPARTMENT/PROCESS						
Work Order:  Part No.  NCR No.			Rework Scrap Use-as-is Work Order Update		Skid-tube Crosstube Machining Small Fab Thermoforming Finishing Large Fab Composite		Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier		Engineering  Quality  Other			
Root				Descri	ption of work order update		Initial	Act	ion	Sign &		,
Cause	Date	Step	Qty		or Non-conformance	Ch	ief Eng	Desci	ription	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved					E		T CATE	GORY				

Landing	Gear	General	 _	_	 _
	Bending	Bend	Grain	Ovalized	Pressure/Forced
Γ	Centre Not Concentric to O/S	BOM/Route	Hardware	Over/Under tolerance	Temperature/Cure
	Cracks	Broken/Damaged	Inspection Incomplete	Part Incorrect	Weld
	Crushed/Crimped.	Burrs	Instructions Incomplete/Unclear	Part Lost/Missing	Wrong Stock Pulled
Г	Cuffs	Contamination	Maintenance	Part Moved	
	Heat Treat	Countersink	Mislabeled	Positioned Wrong	 _
	Inspection Strip in Tube	Cut Too Short	Misread	Power Loss/Surge	Other
	Ripples in Bend	Drill Holes	Offset		
Γ	Torque Waves in Extrusion	Drawing	Out of Calibration		
Γ	Turning Sequence	Finish	Out of Sequence		
	Wave/Twist in Tube	Folio	Outside Dimensions		

DART SERVICE INSTRUCTION
TO AMEND INSTALLATION INSTRUCTIONS IIN-D206-667 REV. D AND EARLIER AND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D206-667 REV. 3 AND EARLIER

REF: CANADIAN STC: SH01-5 REF: FAA STC: SR01304NY REF: EASA STC: EASA.IM.R.S.01179

#### **PURPOSE:**

The purpose of this service instruction is to permanently add the D206-667-017 Kit to the DXXX-667-101/-103/-105/-107 Crosstube kits.

### **INSTRUCTIONS:**

DXXX-667-101/-103/-105/-107 Crosstubes at CHG 005/006/005/003 (respectively) and later are supplied with the D206-667-017 Grounding Strap Kit installed per section 3.2 of IIN-D206-667 Rev. D.

### **WEIGHT AND BALANCE**

There is a negligible weight change associated with the installation of this kit.

CANADA DEPARTMENT OF TRANSPORT AIRCRAFT CERTIFICATION **BRANCH** DAO # 01-O-01

APPROVED

D. SHEPHERD (DE # 02)

CERT. NO .: SH01-5 ISSUE NO .:

Α	NEW IS	SUE (REF	CIR 12-		AJS	11.08.02				
REV.			DE	SCRIPTION	BY	DATE				
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MFG. A	PPR.	N/A		DSI 9628		SHEET				
APPRO	VED	/ED /JP		TITLE		•	SCALE			
DE APP	DE APPR.		- (	GROUNDING STRAP INSTALLATION NTS						
DATE	12.0	8.02		COPYRIGHT © 2012 BY DART AEROSPACE LTD  THIS COCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS  NOT TO BE USED FOR MY PURPOSE OR COMPANIANTED TO ANY OTHER PERSON WITHOUT						

										DQA:	Date:	
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Work Order:  Part No.  NCR No.				Rework Skid-tube Crosstube Machining Small Fab Use-as-is Thermoforming Finishing Composite		mall Fab Finishing	Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier		Engineering Quality Other			
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Heat Treat			Countersink		Mislabeled			Positioned V	<b>V</b> rong			

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish

## DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUOUS AIRWORTHINESS ICA-D206-667 Rev. 3 OR LATER

REF. CANADIAN STC: SH01-5 REF. FAA STC: SR01304NY REF. EASA STC: EASA.IM.R.S.01179

#### PURPOSE:

The supports on the following crosstubes are now installed using Proseal instead of Magnobond:

D206-667-101 @ CHG 004 D206-667-103 @ CHG 005 D206-667-107 @ CHG 002 D206-667-201 @ CHG 004 D206-667-203 @ CHG 004 D206-667-207 @ CHG 002 D407-667-105 @ CHG 004

#### CHANGE:

For the crosstubes listed above, section 32.4 of ICA-D206-667 is amended as follows. Use Figures 32-4 to 32-8 of ICA-D206-667 for further reference. For crosstubes of an earlier change number, it is recommended that if the supports are removed, the supports should be reinstalled using the procedure listed below.

#### 32.4 SUPPORT INSTALLATION

- 32.4.1 Locate the area on crosstube for installation of support (ref. Figures 32-4 to 32-8 of ICA-D206-667). For D206-667-101/-103/-107/-201 and D407-667-105 crosstubes, the outward face of the support tabs should be 13.08" (332mm) from the crosstube center. For D206-667-203/-207 crosstubes, the outward face of the support tabs should be 10.03" (255mm) from the crosstube center. Ensure paint finish of crosstube is intact; touch up as required per Chapter 5 (5.3.9) of ICA-D206-667.
- 32.4.2 If present, remove any paint/primer on bottom of supports. Abrade mating surfaces of support and crosstube with 400-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.3 Ensure a layer of 3M Scotch-Weld 2216 B/A Epoxy Adhesive is on the bottom of the support. If required, either apply or touch-up support to have a 0.03" to 0.05" thick layer of adhesive over the entire mating surface. Allow supports to cure for 24 hours.
- 32.4.4 Abrade mating surfaces of support (after cure) and crosstube with 180-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.5 Apply a 0.04" to 0.07" thick layer of Proseal 890 Class B or AMS-S-8802 Class B sealant underneath applicable support and install support.
- 32.4.6 Install the clamps opposite to crosstube support as shown in Figures 32-4 to 32-8 of ICA-D206-667. Install rubber cushions underneath each clamp around the bottom circumference of the crosstube up to the crosstube centerline. Torque clamps 80-100 in lb (9.0-11.3 Nm). It is acceptable to use smaller or larger sized MS21920-XX clamps than those listed in ICA-D206-667, ensure that after torquing the clamps per this instruction, the nuts are in safety but not bottomed out
- 32.4.7 Prior to installing crosstube on aircraft, allow supports to cure for 72 hours and recheck torque on clamps.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-0-01

APPROVED

BY:
D. SHEPHERD (DE # 02)

DATE:
11.07.20
CERT. NO.:
SH01-5
ISSUE NO.:
3

Α	NEW IS	SSUE		CP	11.07.15				
REV.			DESCRIPTION	BY	DATE				
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MFG. AF	PR.	N/B	DSI 9565	5	HEET 1 OF 1				
APPROV	/ED		TITLE		SCALE				
DE APPI	₹.		SUPPORT INSTALLATION CHANGE NTS						
DATE	11.0	7.15	THIS POLICIAINT SHOUNT ON 2011 BY DART AEROSPACE LTD  THIS POLICIAINT AND CONTROL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS  NOT TO BE LIKED FOR AN WHITTEN PERMESSION OF COMMUNICATED TO ANY OTHER PERSON WITHOUT						

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	Cuffs					Contamination	L	Mainte	enance			Part Moved			
	Heat Treat					Countersink		Mislabe	eled	L		Positioned \	=	_	1
		Inspection Strip in Tube				Cut Too Short	L	Misread				Power Loss/	'Surge		Other
ļ		Ripples in	n Bend			Drill Holes		Offset							

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Item	Qty -145	Part Number	Description
1	X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
Ĺ			
2	1	D6010-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

### **GENERAL NOTES:**

С

В

- 1) MATERIAL: MANUFACTURED FROM D60 10-115 FINISHED LENGTH = 113.20±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-145" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 17.8 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

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WORK ORDER MLJ NO.\_\_88031 MLJ 12/07/25

DEO ATTACHED

ECW#11-615 11.07.28

UNDER REVIEW

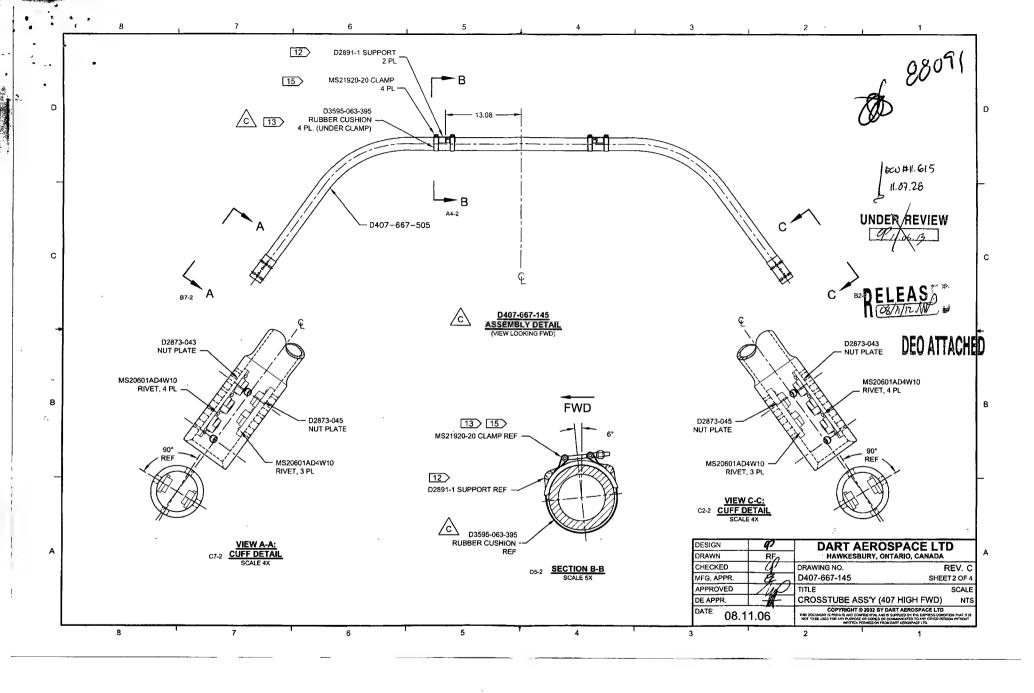
С	REORG TO CUF D3595-C REMOV D2-3); R MOVED	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2656-400-694 (ZN D6-2 & A5-2); REMOVED REF. 7 ADD TOLERANCES (ZN C6-3, C4-3, D2-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.									
В		DLES AND NUT HT/AA SKUDTI	PLATES FOR COMPATABILITY JBES	PH	05.07.26						
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DATE	08.1	1.06	COPYRIGHT © 2002 BY DART AT THIS GOODMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED NOT TO BE USED FOR ANY PURPLIES OR COPIED OR COMMUNICATION OF COMMUNICATI	OR THE EXPRES	SI TI TANT HONTICHOO B						

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Part N					Rework Scrap	4 1	Skid-tube Machining	Crosstube Small Fab	Water Jet Prod. Eng. Coor.		Engineering Quality	
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	Cracks			<u> </u>	Broken/Damaged	<b>—</b>	tion Incomplete	<u> </u>	Part Incorre	<b>)</b>	Weld	
}	Crushed/	Crimped.		-	Burrs	$\vdash$	tions Incomplete/	Unclear	Part Lost/M	issing	Wrong Stock Pulled	
}	Cuffs			_	Contamination	<del></del>	enance	-	Part Moved			
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}	Ripples in Bend Drill Holes					Offset						
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ļ	Turning Sequence Finish					$\boldsymbol{\vdash}$	Sequence					
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	Cuffs					Contamination	Г	Mainte	nance		Part Move	<b>.</b> d		'
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Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

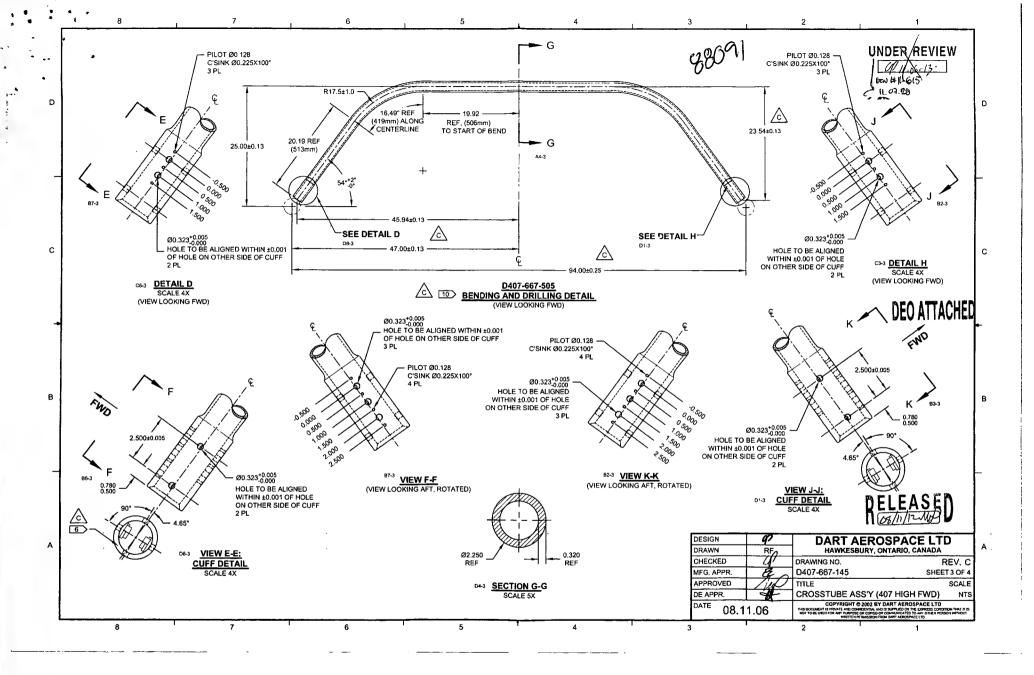
Torque Waves in Extrusion

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G



										DQA:	Date	: <u> </u>	
NCR: Y	es / No				WORK ORDER NON-0	COI	NFORI	MANCE / UPDATE		QA Closed:	Date	:	
Work Orde	\r.				DISPOSITION AGAINST DE					EPARTMENT/PROCESS			
Part No					Scrap Machining Small I Use-as-is Thermoforming Finish			Machining Small Fab	Prod. Eng. Coor. Rec/Store/Packaging			Engineering Quality Other	
Root				Descri	ption of work order update		nitial	Action		Sign &			
Cause	Date	Step	Qty		or Non-conformance	Ch	ief Eng	Description		Date	Verification	QC Inspector	
Doc/Data													
Equip/Tooling													
Operator								1 1					
Material													
Setup						1							
Other													
Process				1									
Supplier													
Training													
Unapproved		<u> </u>		<u> </u>									
					F	AUL	T CATE	GORY					
Landi	ng Gear				General					-	<b></b>	-	
	Bending			<u> </u>	Bend		Grain		L	Ovalized		Pressure/Forced	
	Centre Not Concentric to O/S BC				BOM/Route		Hardwa	are	L	Over/Under	tolerance	Temperature/Cure	
	Cracks			Broken/Damaged	L	Inspect	ion Incomplete		Part Incorred	ct	Weld		
	Crushed/	Crimped.			Burrs		Instruct	tions Incomplete/Unclear	L	Part Lost/Mi	ssing	Wrong Stock Pulled	
	Cuffs				Contamination		Mainte	enance		Part Moved			
	Heat Trea	at			Countersink		Mislabe	eled		Positioned V	Vrong		

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

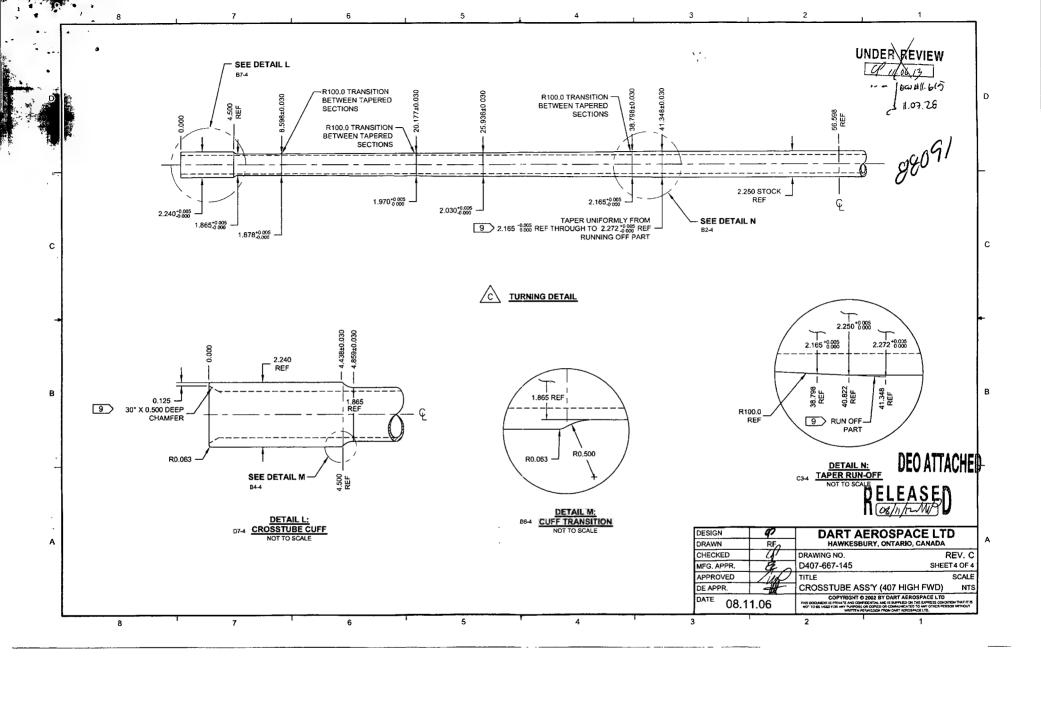
Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish Folio



NCR: \	<b>Yes</b>	/ No				WORK ORDER NON-	COF	NFORI	MANCE / UP	DATE			•	
						·····					QA Closed:	Date:		
Work Orde	er:					DISPOSITION		AGAINST DEPARTMENT/PROCESS						
	Part No.					Rework Scrap Use-as-is	Scrap Machining			Crosstube Small Fab Finishing		Water Jet d. Eng. Coor. e/Packaging	Engineering Quality Other	
NCR No.					Work Order Update			Large Fab	Composite	, , , , , , , , , , , , , , , , , , , ,	Supplier			
Root					Descri	ption of work order update		nitial	Act	tion	Sign &			
Cause		Date	Step	Qty	(	or Non-conformance	Ch	ief Eng	Desci	ription	Date	Verification	QC Inspector	
Doc/Data														
Equip/Tooling														
Operator														
Material														
Setup			1											
Other			ļ											
Process	Ш						İ							
Supplier	Н										:			
Training	Ш		ļ											
Unapproved	Ш			<u> </u>			1							
111						<del></del>	AUL	T CATE	GORY					
Landi						<b>General</b> Bend		Grain			Ovalized	<u> </u>	٦, ،,	
	-	Bending Centre No	at Cancai	ntric to		BOM/Route	-	Hardwa	**		Ovalized Over/Under	talaranaa	Pressure/Forced	
		Cracks	or concei	itric to	<sup>0/3</sup>  -	Broken/Damaged	$\vdash$		on Incomplete	-	Part Incorre	<del></del>	Temperature/Cure Weld	
	${f H}$	Crushed/	Crimned		-	Burrs	-		ions Incomplete/l	Uncloar	Part Lost/Mi	<del></del>	Wrong Stock Pulled	
	-	Cuffs	cimpeu,		H	Contamination	-	Mainte	•	Unicieal	Part Moved		Twi ong stock rulled	
	<b>—</b>				Countersink	-	Mislabe		-	Positioned V	Vrong			
	Inspection Strip in Tube Cut Too Short						Misread Power Loss/Surge			Other				
					Drill Holes		Offset	-	L.	1. 0		15.1161		
	<b>├</b> ─ <b>│</b> ``					Drawing			Calibration					
	F-1 F1					Finish		Out of Sequence						

Outside Dimensions

DQA:

Date:

Wave/Twist in Tube

Folio

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DRAWING NO.	TITLE	REV. C	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D407-667-145	CROSSTUBE ASS'Y	(407 HIGH FWD)	ENGINEERING ORDER	D407-667-145-C-1	SHEET 1 OF 1	NTS
DRAWN 9	CHECKE	) /\S	MFG. APPR.	APPROVED	DE APPR.	
DATE 11.07	.15 DATE	11.07.22	DATE 11:07:22	DATE 11/07/22	DATE 11.07.2	i

**PURPOSE:** 

REPLACE MAGNOBOND WITH PROSEAL.

0,009/

# CHANGE:

IS

Item	Qty -145	Part Number	Description
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

### WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023
			ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,
			TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

### 18

- 12) TO INSTALL D2891-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

## WAS:

- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



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			1	•				DQA:	Date:	
NCR: Yes	No		•	WORK ORDER NON-	CONFORI	MANCE / U		QA Closed:	. Date:	#* . #
Work Order:				DISPOSITION		19 m 19 m 19 m	AGAINST DE	PARTMENT	/PROCESS	
Part No.			•	Rework Scrap Use-as-is Work Order Update	Thern	Skid-tube Machining forming Large Fab	Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root				Description of work order update	Initial*	^.	Action	Sign &	·	<b>3</b>
Cause	Date	Step	Qty	or Non-conformance	Chief Eng	', Des	scription	Date	Verification	QC Inspector
quip/Tooling Operator Material etup Other crocess upplier				· ·					F.	
Inapproved				·	AULT CATE	GORY				·
	_				MOLI OMIL	~~·\·				

Landir	g Gear	General		_			
	Bending	Bend		Ģrain <sup>′</sup>		Ovalized	Pressure/Forced
	Centre Not Concentric to O/S	BOM/Route	4	Hardware		Over/Under tolerance	Temperature/Cure
	Cracks	Broken/Damaged		Inspection Incomplete		Part Incorrect	Weld
	Crushed/Crimped.	Burrs		Instructions Incomplete/Unclear		Part Lost/Missing	Wrong Stock Pulled
. [	Cuffs	Contamination		Maintenance		Part Moved	 
	Heat Treat	Countersink *		Mislabeled		Positioned Wrong	* -
	Inspection Strip in Tube	Cut Too Short :		Misread*		Power Loss/Surge	Other -
	Ripples in Bend	Drill Holes		Offset *			-
	Torque Waves in Extrusion	Drawing		Out of Calibration	•		•
	Turning Sequence	Finish		Out of Sequence			,
Γ	Wave/Twist in Tube	Folio		Outside Dimensions -			

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# REFERENCE ONLY Small



# DART AEROSPACE LTD.

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### 5.0 **PARTS LIST**

### **HIGH GEAR CROSSTUBES** 5.1

ltem	Qty -101	Qty -201	Qty -103	Qty -203∉	Qty -105	Qty -205	Part Number	Description
	Х						D206-667-101	CROSSTUBE INSTALLATION, 206A/B HIGH FWD
		х					D206-667-201	CROSSTUBE INSTALLATION,
	ļ		X	·	-	-	D206-667-103	206A/B HIGH AFT CROSSTUBE INSTALLATION,
			^				D200-007-103	206L/L-1/L-3/L-4 HIGH FWD
				Х			D206-667-203	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH AFT
	-			<b>-</b>	Х	· · · · · · · · · · · · · · · · · · ·	D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
	<b></b>					Х	D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
1	1						D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2		1					D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3			1				D206-667-143	CROSSTUBE ASSEMBLY,
							<u>.</u>	206L/L-1/L-3/L-4 HIGH FWD
4				1			D206-667-243	CROSSTUBE ASSEMBLY,
								206L/L-1/L-3/L-4 HIGH AFT
5					1		D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
6						1	D407-667-245	CROSSTUBE ASSEMBLY, 407 HIGH AFT
							5555	
10	*2	*2	*2	L	*2		D2891-1	SUPPORT
11		ļ		*2			D2892-1	SUPPORT
12		<u> </u>		<u> </u>		*1	D2894-1	SUPPORT
13	*4	*4	*4		*4		D3595-063-395	RUBBER CUSHION
14				*4		+0	D3595-063-450	RUBBER CUSHION
15	-		1			*2	D3595-075-430	RUBBER CUSHION
16	*4	*4	*4	*4	*4		MS21920-20	CLAMP
17	ļ	-		-4		*4	MS21920-22	CLAMP
18		<del></del>		<b>_</b>	<b>C</b> 4=	*2	MS21920-25	CLAMP (OR MS21920-24)
19	4	4	4	-	-4-		-AN5-32A	BOLT
20	<del></del>	<u> </u>		4		4	AN5-34A	BOLT
21	4	4	4	4	<u></u>	=4=	-MS21042L5	=NUT=(OR:MS21042=5)>>
22	8	8	8	8	<b>C</b> 8=	=8= *2	INAS1149G0563J D3190-1	WASHER (OR AN960JD516)
23		<u> </u>	<del> </del>	-			D3 190-1	CHAFING SHIELD
40	*2		*2	*2	*2	*2	D2873-043	NUT PLATE
40 41	*2	ļ	*2	*2	*2	*2	D2873-045	NUT PLATE
41 42	12	2	1-2	<del> </del> -	<del> </del>	<del>                                     </del>	D2872-043	NUT PLATE
	ļ	2	<del></del>		-		D2872-045	NUT PLATE
43	10	-	10		<del>                                     </del>		AN5-7A	BOLT
45	10	10	10	10	410-	=10-	-AN5-10A-	-BOLT>
45	4	10	4	<del>  '</del>	-10- -4-	10	-AN5-30A	BOLT
46	4	10	4	4	4	=4=	TAN5-30A	-BOLT
47	<del> </del>	<del> </del>	12	<del>  4</del> -	<b>.</b>	4	AN970-4	WASHER (OPTIONAL)
48	ļ	6	12	-	<u> </u>	ļ	MS21042L5	NUT (OR MS21042-5)
	10	1 -	10	10	C10=	10-	MS21042L5 =NAS1:149C0563J=	-WASHER (OR AN960JD516)
50	10	12	10	10	-10=	=10=	-NA91-149C02020	LANYOUEV-(OK WINDON) TO
60	<del> </del>	1	<del> </del> -	<del> </del>	<del> </del>		D3039-3	CENTER DRILL (TOOLING, NOT INSTALLED)
OU	L	_ '	<u> </u>	1			P3038-3	DENTER DRILL (TOOLING, NOT INSTALLED)

\*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/-143/-241/-243 & D407-667-145/-245 ASSEMBLIES ABOVE

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Revision: D

Date: 11.05.01



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# LIQUID PENETRANT TEST REPORT

**P-** 12680

ACUREN							4		~ • • •
	0	1 .	2			Λ		PAGE _	OF
CLIENT	DAT	1 AEROSTA	4CE		DATE	Nou. 1	1,2062		AM 🗹 PM 🗆
ATTENTION	AND	4 - CHANT	TAL_		ACUREN JOB NO.	18	8-12-co	391	
ADDRESS	1270 A	BELDEEN	ST.		PO/WO No.				
1	JAWKES B	wy on			WORK LOCATION	<u> </u>	ME.		
·		7			ACCEPTANCE STD	ASTU 141	7/051-038	REV./DAT	2005
PROJECT		FPI	· au	C	2035 Tu	BES			
ITEM(S) EXAMINED				1	.)				
(-, =									
JOB DESCRIPTION	N	PROCEDURE No. L	T-0002 REV	./DATE	2008	TECHNIQUE N	O. LT- GOHAD	REV./DATI	E 2008
PART NO.	SE	E RESUL	75S		MATERIAL ALL	win /	STEEL THICK	NESS	SAMOUS
SCOPE A	ET PLO	MESCENT	DYC I	/ کی۔	<i>,</i> , , , , , , , , , , , , , , , , , ,		CONFLETE	s ow	THE
(42)%	FXTEN	WAL SUL	FACE		-				
TEST DETAILS	01.00	7 30 2							
METHOD	Z FLUC	ORESCENT	☐ VISIBLE		WATER WASH		SOLVENT REMOV		☐ Post Emulsified
FAMILY BRAND		Hux			BLACK LIGHT S/N		☐ OUTPUT > 1000 µ		AMBIENT < 2 fc
PENETRANT	2167	MINIMUM DWELL TI		MIN.		O FLASHLIGH A名へい		U OUTP	UT>100 fc @ SURFAC
PENETRANT REMOVE DEVELOPER	CAN CO	MINIMUM DRY TIME MINIMUM DWELL TII		Min. Min.	OTHER LIGHT METER S/N			CAL DUE	DATE NOU (2
DEVELOPER TYPE	Non Aq		☐ DR		•				200
TEST SURFACE									
SURFACE CONDITION			WELDED °C/ 20°F TO 1	0°C/50°	MACHINED	SHOT B	LASTED 0°F TO 52°C/125°F		LEAN BARE METAL 52°C/125°F
SURFACE TEMPERA RESULTS-	(D METRIC		-C/ 20°F 10 1	0 0/50		10 0/0	01 10 02 0/120 1		
ITEM		MENTS	ACCEPT	REJECT	$\mathbb{X}_{\mathbb{X}}$		X X X	X	
Cen	cc1 ea	6) 2#					$\times^{\times}\times^{\times}$		
	1 aust	000				$\rightarrow \leftarrow$			
1 1	-anjum	(88091)							
1 4	4	84487		<b>†</b>		$\mathbb{X}^{\times}\mathbb{X}$			
1 "	4.6	84782	1	<del>                                     </del>			$\times$		
1-5-1	- CE	AUU BB	1	<del> </del>			$\sim$	$\leftarrow$	
1 /0	765,	C0357.85	8				× Chychae		
16	2334	CEOSS ME	1	1		$\gg \gg$	X		$\times \longrightarrow \times$
1/ 6	3335		1./	1					
7	22339		1	†					
		<u></u>					$\leq \geq$	$\leq \geq$	
				<b>†</b>					
Scope of Services				+					
The agreement of Acuren (		vices extends only to those service opinion reflect the opinions or obs							
1 .		opinion reflect the opinions or obs s not assuming any responsibilitie p Inc.  In no event shall Acuren G	c of the owner/oner	ator and the	owner/onerator retains con	mpiele responsibili	y for the engineering, many	acture, repair	and use decisions as a result of
		Inc. uses the degree, care and skil						ar locality. N	o other warranty, expressed or
implied, is made or intend	ed by Acuren Group Inc.								
SIGNATURES	A	<u> </u>							12-2-4
CLIENT REPRESE	NTATIVE A	2 Table			SIGNATURE		DTR#	=	100057
TECHNICIAN (SIGNA	ATURE):	PRINT			SIGNATURE .		REPORT		
	111	ka PALLON					REVIEWED BY:	AME	INITIALS
NAME (PRINT):	11 1-4	ST TECHNICIAN			2 <sup>NO</sup> TECHNICIAN		.``	- J	
	CGSB	· <del></del>		CGSB LE		LEVEL			
1	CGSB	REG. NO		CGSB R	.G. NO				